Permit to Operate

COMPANY NAME: PARAMOUNT PETROLEUM CORP
ID No. 800183
RECLAIM Cycle 1 NOx, SOx

MAILING ADDRESS: 14700 Downey Ave
Paramount, CA 90745

EQUIPMENT LOCATION: 14700 Downey Ave
Paramount, CA 90745

CONTACT PERSON: June Christman
(562) 748-4704

EQUIPMENT DESCRIPTION

SECTION D: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions And Requirements	Conditions
Process 1: CRUDE DISTILLATION					
System 1: CRUDE UNIT FEED DESALTER					
VESSEL, DESALTER, D-804, COMMON TO CRUDE UNITS 1&2, LENGTH: 37 FT; DIAMETER: 12 FT A/N: ~~293151~~ 441893	D491				
VESSEL, DESALTER, D-606, COMMON TO CRUDE UNITS 1&2, LENGTH: 20 FT; DIAMETER: 10 FT A/N: ~~415927~~ 441894	D25				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 441893	DXXX				H23.2

BACKGROUND

Paramount Petroleum Corporation (Paramount) operates a petroleum refinery located at 14700 Downey Avenue in the city of Paramount in the southern portion of Los Angeles County. Paramount processes crude oil into marketable products including gasoline, diesel fuel, jet fuel and other products. Emission sources at the refinery include combustion sources (heaters, boilers, and IC engines), fugitive components (pumps, valves, flanges, compressors, drains, etc.), cooling towers, storage tanks, flares and loading/unloading facilities. The South Coast Air Quality Management District (AQMD) identification number for the facility is 800183.

On March 17, 2005, Paramount Petroleum submitted two (2) modification applications for Permits to Construct for Crude Units No. 1 and 2. Paramount wishes to modify Crude Units No. 1 & 2 to use desalters D-804 (Device D491) and D-606 (Device D25) interchangeably on the two units for operational flexibility. However, at some point after these applications were submitted, Paramount performed the modifications, so this is now a Permit to Operate with no Prior Permit to Construct for the modifications, and is subject to a 50% penalty. As a part of these permit modifications, the permit units containing the desalters will be split from the crude unit. Table 1 lists permit history and equipment information. Table 2 lists permit fees.

Table 1: LIST OF APPLICATIONS COVERED
IN THIS ENGINEERING EVALUATION

A/N	*Previous A/N*	*Previous Permit No.*	*Description*
441893	293151	F21909	Vessel, Desalter, D-804 (Crude Unit #1)
441894	415927	F62278	Vessel, Desalter, D-606 (Crude Unit #2)

Table 2: RULE 301 FEES

A/N	***Equipment Description***	***Fee Schedule***	***Fee Required***	***Fees Paid***	***Rule 301 Date***
441893	Desalter vessel (PO no PC 50% penalty)	E	$5,474.25	$3,649.50	07/09/2004
441894	Desalter vessel (PO no PC 50% penalty)	E	$5,474.25	$3,649.50	07/09/2004
TOTAL			$10,948.50*	$7,299.00	

*An additional $3,649.50 is required since this modification was completed with no PC.

COMPLIANCE RECORD REVIEW

A review of the AQMD Compliance Database showed 33 Notices of Violation (NOV) and Notices to Comply (NC) issued to Paramount in the past five years (12/15/06 - 12/15/11). All notices are either closed or in compliance status. The Stipulated Orders for Abatement (SOFA) are closed. Paramount is on a schedule to compliance on the Variance Cases.

PROCESS AND PROJECT DISCUSSION

Currently Desalter D-804 (AQMD Device D491) is permitted as part of Crude Unit #1 (Process 1, System 1), and Desalter D-606 (AQMD Device D25) is permitted as part of Crude Unit #2 (Process 1, System 2). AAs part of this permitting action, Paramount modified Crude Units #1 & #2 so that either desalter can be used on either crude unit for operational flexibility.

The purpose of the desalters is to separate salts and other impurities from incoming crude oil. The only change in emissions came from the addition of fugitive components to allow the interchangeable use of each desalter on each crude unit.

Additionally, the following administrative change will be included as part of this evaluation: Per to Table 1B, page 69 of Rule 301 (amended 5/7/2010), the Desalting Units are a separate permit unit, and therefore will be separated from the Crude Distillation Unit. A new system will be assigned to the Desalting Process Unit under the above application numbers.

EMISSIONS CALCULATION

The increase in emissions from this modification of Desalters D-804 (Device D491) and D-606 (Device D25) interchangeably on the crude units consist of fugitive emissions from addition of piping and other fugitive components to facilitate the interchangeable use. Since there will be no modification in the amount or quantity of crude processed, the only increase in emissions from permitting the desalters to be used interchangeably will be fugitive emissions from the addition of fugitive components.

The fugitive emissions are calculated based on emission factors derived from the Correlation Equation Method (AQMD's Guidelines for Fugitive Emissions Calculations, June 2003, Method 2). Since these desalters were previously subject to NSR, the emissions increases are calculated as from the previous Potential to Emit to the current Potential to Emit. The proposed modification results in an increase of ***0.95 lbs/day***. Details of the emissions are tabulated in Tables 3 and 4.

Table 3: FUGITIVE COMPONENTS COUNT AND EMISSIONS FOR CRUDE UNIT #1 & 2 D-804 (D491), A/N 441893

Source Unit		Service	No of Pre-Mod Components (1)	No. of New Components Installed (3)	Correlation Equation Factor, 500 ppm Screening Value	Pre-Modification Emissions (lbs/year)	Post Modification Emissions (lbs/year)
Valves	**Sealed Bellows**	**All**	17	2	0	0	0
	SCAQMD Approved I & M Program	**Gas / Vapor**	0	0	4.55	0	0
		Light Liquid	32	9	4.55	145.6	186.55
		Heavy Liquid	0	0	4.55	0	0
Pumps	**Sealless Type**	**Light Liquid**	0	0	0	0	0
	Double Mechanical Seals or Equivalent Seals	**Light Liquid (4)**	1	0	46.83	46.83	46.83
	Single Mechanical Seals	**Heavy Liquid (5)**	0	0	46.83	0	0
Compressors		**Gas / Vapor**	0	0	9.09	0	0
Flanges (ANSI 16.5-1988)		**All**	76	20	6.99	531.24	671.04
Connectors		**All**	111	37	2.86	317.46	423.28
Pressure Relief Valves		**All**	0	0	0	0	0
Process Drains with P-Trap or Seal Pot		**All**	0	0	9.09	0	0
Other (including fittings, hatches, sight-glasses, and meters)		**All**	7	2	9.09	63.63	81.81
Total Emissions (lbs/year)			244	70		1104.76	1409.51
Emissions Increase (lbs/day)							**0.85**

(1) Any component existing prior to the modification.
(2) Any component removed due to modification.
(3) Any new component installed due to the modification; this also includes new components installed to replace existing components.
(4) Light liquid and gas/liquid streams: Liquid or gas/liquid stream with a vapor pressure greater than that of kerosene (>0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume.
(5) Heavy liquid: streams with a vapor pressure equal to or less than that of kerosene (<0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume.

Table 4: FUGITIVE COMPONENTS COUNT AND EMISSIONS FOR CRUDE UNIT #1 & 2 D-606 (D25), A/N 441984

Source Unit		Service	No of Pre-Mod Components (1)	No. of New Components Installed (3)	Correlation Equation Factor, 500 ppm Screening Value	Pre-Modification Emissions (lbs/year)	Post Modification Emissions (lbs/year)
Valves	**Sealed Bellows**	**All**	6	7	0	0	0
	SCAQMD Approved I & M Program	**Gas / Vapor**	0	0	4.55	0	0
		Light Liquid	56	0	4.55	254.8	254.8
		Heavy Liquid	0	0	4.55	0	0
Pumps	**Sealless Type**	**Light Liquid**	0	0	0	0	0
	Double Mechanical Seals or Equivalent Seals	**Light Liquid (4)**	0	0	46.83	0	0
	Single Mechanical Seals	**Heavy Liquid (5)**	0	0	46.83	0	0
Compressors		**Gas / Vapor**	0	0	9.09	0	0
Flanges (ANSI 16.5-1988)		**All**	54	3	6.99	377.46	398.43
Connectors		**All**	201	5	2.86	574.86	589.16
Pressure Relief Valves		**All**	1	0	0	0	0
Process Drains with P-Trap or Seal Pot		**All**	0	0	9.09	0	0
Other (including fittings, hatches, sight-glasses, and meters)		**All**	4	0	9.09	36.36	36.36
Total Emissions (lbs/year)						1,243.48	1,278.75
Emissions Increase (lbs/day)							**0.10**

(1) Any component existing prior to the modification.
(2) Any component removed due to modification.
(3) Any new component installed due to the modification; this also includes new componentsinstalled to replace existing components.
(4) Light liquid and gas/liquid streams: Liquid or gas/liquid stream with a vapor pressure greater than that of kerosene (>0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume.
(5) Heavy liquid: streams with a vapor pressure equal to or less than that of kerosene (<0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume

Table 5: INDIVIDUAL AND OVERALL EMISSIONS INCREASE AND REQUIRED OFFSET AMOUNT

Device No.	**30 DA Increase**
Fugitives for D25	0.10
Fugitives for D491	0.85
SUM OF INCREASES	**0.95**
OFFSET REQUIRED	**1 LB**

The required VOC offset due to addition of fugitive components is derived from the increase in VOC on an annual basis, divided by 12 and then by 30 to obtain the daily increase of emissions on a 30 day average basis. This result was multiplied by a factor of 1.2 and rounded to the nearest integer. In this case, the increased throughputs and added fugitive components will result in one (1) pound of VOC offset being required.

RULES EVALUATION

Rule 212 Standards for Approving and Issuing Public Notice (Amended Nov. 14, 1997)

212 (a) The applicant is required to show that the equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce, or control the issuance of air contaminants, is so designed, controlled, or equipped with such air pollution control equipment that it may be expected to operate without emitting air contaminants in violation of provisions of Division 26 of the State Health and Safety Code of these rules. The operation of the modified crude units is expected to comply with this requirement.

212(c)(1) Public notification is required if any new or modified permit unit, source under Regulation XX, or equipment under Regulation XXX may emit air contaminants located within 1000 feet from the outer boundary of a school. The crude units are not located within 1000 feet of a school. Therefore, public notification is not required.

212(c)(2) Public notification is required if any new or modified facility has on-site increases exceeding any of the daily maximums specified in subdivision (g) of this rule. Since the increase in VOC emissions is less than 30 lbs/day, public notification is therefore not required.

212(c)(3) Public notification is required if the increase in maximum individual cancer risk (MICR), based on Rule 1401, exceeds one in

a million (1×10^{-6}), due to a project's new construction or proposed modification. Since there is the increase in emissions with the operation of the proposed project is less than one in a million, public notification not required.

212(g) This subdivision sets forth the process for federal public notification and distribution and specifies the daily maximum emissions increase as follows:

Air Contaminant	Daily Maximum in lbs/day
Volatile Organic Compounds	30
Nitrogen Oxides	40
PM10	30
Sulfur Dioxide	60
Carbon Monoxide	220
Lead	3

Since the increase in VOC emissions is well under 30 lbs/day from the modification of the crude units, federal public notification is not required.

Rule 401 Visible Emissions (Amended November 9, 2001)
Operation of the modified crude units is not expected to result in visible emissions. Therefore, compliance with this rule is expected.

Rule 402 Nuisance (Adopted May 7, 1976)
Operation of the crude units is not expected to result in a public nuisance. Therefore, compliance with this rule is expected.

Rule 1173 Control of VOC Leaks and Releases from Components at Petroleum Facilities and Chemical Plants (Amended February 6, 2009)
Rule 1173 categorizes leak types and stipulates maintenance & reporting requirements for fugitive components. Paramount is required to include these new installed components as a result of this project into their existing 1173 inspection and maintenance program. Paramount added new fugitive components during the modification of the crude desalters. Compliance is expected. A new device ID for fugitive emissions from the move of the desalting units to their own process units will be created and will be tagged with Condition H23.24.

Reg XIII Rule 1303: Requirements (Amended Dec. 6, 2002)

1303(a)(1) Best Available Control Technology (BACT)
The increase in VOC emissions due to this modification is less than 1 lb/day, therefore BACT is not required.

1303(b)(1) Modeling

According to Rule 1303 Appendix A, modeling for VOC is not required.

1303(b)(2) Emission Offsets

Offsets are required according to District policy if project emission increases, including sum of all emission increases from all applications for that project are more than 0.5 lb/day for all non-attainment air contaminant and their precursors (excluding CO). Offset ratios shall be 1.2 to 1.0 for Emission Reduction Credits (ERC). As shown in Table 6, there is a 0.95 lbs/day increase in VOC emissions from Application Nos. 441893 & 441894. Paramount will provide ERCs in the amount of 1 lbs/day (0.95 x 1.2 = 1.14 ~1.0).

1303(b)(3) Sensitive Zone Requirements

The facility is located in Zone 1. Therefore, emission reduction credits will be obtained from the same Zone 1. Compliance with this requirement is expected.

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1303(b)(4) Facility Compliance

The facility complies with all applicable rules and regulations of the District.

1303(b)(5) Major Polluting Facilities

(This application is not considered a major modification according to the definition in R1302(r), since the increase in emissions is less than one lb/day. This section, therefore, does not apply.

Rule 1401 – New Source Review of Toxic Air Contaminants, Amended March 4, 2005

This rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and non-cancer acute and chronic hazard index (HI) for new permit units, relocations, or modifications to existing permits which emit toxic air contaminants (TAC).

Rule 1401 requirement levels are as follows:

MICR, without T-BACT:	$\leq$ 1 in 1 million (1.0×10^{-6})
MICR, with T-BACT:	$\leq$ 10 in 1 million (1.0×10^{-5})
Cancer Burden:	$\leq$ 0.5
Maximum Chronic Hazard Index:	$\leq$ 1.0
Maximum Acute Hazard Index:	$\leq$ 1.0

Tier 1 screening analysis was performed to determine the maximum one-hour and annual average emission rates of TAC released to atmosphere from the addition of fugitive components to connect the desalters to either crude unit. The results of the health risk assessment are summarized in Table 7. (See Attachment 1 for Rule 1401 Tier 1 risk screening.)

Table 7: Results of Health Risk Assessment for D25 & D491

Tier 1 Results for D25			**Tier 1 Results for D491**	
Cancer/ Chronic ASI	**Acute ASI**		**Cancer/ Chronic ASI**	**Acute ASI**
3.91E-03	3.51E-05		8.81E-02	7.75E-05
passed	passed		passed	Passed

1401(d)(1)(A): MICR

The TACs present in VOC from crude oil are less than the screening levels and hence, MICR is less than one in a million.

1401(d)(1)(B): Not applicable.

1401(d)(1)(C): Cancer Burden

Not applicable since MICR value is less than one in a million.

1401(d)(2): Chronic HI

Passed Tier 1 screening

1401(d)(3): Acute HI

Passed Tier 1 screening

1401(d)(4): Risk per Year

Since MICR value for D25 and D491 is less than one in a million, the risk per year for each is less than $1/70^{th}$ this value.

1401(d)(5): Not applicable.

1401(d)(6): Federal New Source Review for Toxics

Not applicable. Section 112 of the federal Clean Air Act (CAA) defines major source as any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant (HAP) or 25 tons per year or more of any combination of hazardous air pollutants (HAPs). Since Paramount does not emit more than 10 tons annually of a listed HAP or more than 25 tons annually of a combination of HAPs, it is not subject to this requirement.

Reg XXX Title V Permits

Rule 3001(a): Applicability (Amended November 14, 1997)
Paramount Petroleum was issued a final Title V operating permit on February 27, 2009. This application is classified as de minimus significant permit revision as defined in 3000(b)(7). De minimums significant permit revisions are exempt from public participation per 3006(b); however the proposed permit revision is required to be submitted to the EPA per 3003(j)(1)(B) and to the State per 3003(m)(1).

The proposed de minimums significant permit revision shall be submitted to the EPA and State.

STATE REGULATIONS

CEQA California Environmental Quality Act
The applicant has submitted 400-CEQA Forms, California Environmental Quality Act Applicability, indicating that CEQA documents are not required.

FEDERAL REGULATIONS

NSPS for Petroleum Refinery Equipment VOC Leaks – 40CFR60 Subpart GGG/GGGa
Since a change in piping is not considered a modification, these subparts do not apply to this change.

RECOMMENDATION

It is recommended that Permits to Construct be issued in the Facility Permit Section D subject to the following system conditions:

<table>
<tr><th>System No.</th><th>Condition No.</th><th>Condition</th></tr>
<tr><td>P1, S3</td><td>H23.2</td><td>This equipment is subject to the applicable requirements of the following rules or regulations:
<table>
<tr><td>Contaminant</td><td>Rule</td><td>Rule/Subpart</td></tr>
<tr><td>VOC</td><td>District Rule</td><td>1173</td></tr>
</table>
[Rule 1173, 5-13-1994; Rule 1173, 2-6-2009]

[Devices subject to this condition: DXXX]</td></tr>
</table>

List of Attachments:	
1	Rule 1401 calculations